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ACADEMY FOR CONTINUING EDUCATION

Energize your future!

MSc Renewable Energy Systems

TU Wien I Energiepark Bruck/Leitha

Postgraduate Program
Master of Science (MSc)
4 Semesters, part-time

ASIIN

Since 2005 MSc Renewable Energy Systems

Develop the energy systems of tomorrow!

Univ.Prof.Dr.techn. Reinhard Haas
Academic Director

» Renewable energy and energy-efficiency improvements are the key issues for heading toward sustainable energy systems. In recent years, especially electricity generation from variable renewable energy sources such as wind and solar has increased in many countries world-wide. In the EU, renewables have become No. 1 in electricity generation. The next challenge is sector integration, using excess electricity from renewables to also provide fuels for mobility and heating. One core objective of this post graduate Master's program is to train experts who will be able to cope with this challenge. «

Expertise for the most important topic of your generation

Identifying pathways for heading towards sustainable energy systems is one of the major challenges of our time. The core role in this context play renewable energy technologies, such as wind, biomass, solar, hydro and some others. In addition, decentralisation, digitalisation and the wish of many energy consumers for more democratic energy supply will lead to lasting changes in the energy sector.
Integrating all the usable renewable energy systems available into already existing grids and furthermore building new intelligent grids is another main challenge of this generation.

The demand in the fast growing renewables sector for well-founded knowhow has increased. The complementary strengths of the TU Wien and Energiepark Bruck/Leitha partnership make this interdisciplinary MSc Program an outstanding opportunity to satisfy the market demand worldwide.

This part-time master's program is designed to give the participants the necessary skill-set to become experts in their respective fields of interest and to fathom a comprehensive view on the global market situation in order to contribute to a long-lasting change.

Graduates of this program have the tools to become experts in:

- Technical aspects of all renewable energy sources
- The legal as well as economic challenges and opportunities of the global energy market
- The big picture of the ongoing energy transition

TU WIEN

Technology for People – Developing scientific excellence and enhancing comprehensive competence

The TU Wien – located in the heart of Europe and Vienna – is the largest Austrian institution in research and education within the areas of technology and natural sciences. Even though the beginnings of TU Wien reach back more than 200 years: research, teaching, and learning are state-of-the-art.

ENERGIEPARK BRUCK/LEITHA

Think Globally, Act Locally – more than 25 years of experience in the field of renewable energy

The association Energiepark Bruck/Leitha was established in 1995 and acts as an innovation center for renewable energy, energy efficiency, climate protection and regional development. Since then a wide range of renewable energy projects have been realized.

FURTHER PARTNERS

Tailor-made country modules are offered to gain in-depth knowledge on energy markets in selected European countries. Previous country-specific contributions have been made by: AGH-University of Science and Technology (Krakow), Czech Technical University (Prague), Ege University (Izmir), Hamburg University of Technology (Hamburg), University of West Hungary (Sopron), ApE-Agencija za prestrukturiranje energetike (Ljubljana), BGWEA Bulgarian Wind Energy Association (Sofia), and Energetski Institut Hrvoje Pozar (Zagreb).

Curriculum

MODULE 1 Introduction on Renewable Energy	Non-conventional energy production, energy mix, energy trade, international and European programs and conventions in the sector of renewable energy • Economic aspects of renewable energy, basic economics, basic management, introduction on risk evaluation and risk management • Structural planning • Distribution networks (electric, thermal, gas), feeding-in and control of distribution networks • Practical examples of network interaction
MODULE 2 Biomass, Biofuels & Biogas	Principles of energetic use of biomass (physical, chemical), available raw material resources, and ecological resource management • Plant engineering for the energetic use of biomass (electric, thermal, gas, liquid) • Planning, construction, implementation, operation, and maintenance • Economic evaluation, risk, and cost aspects • Practical examples, field trips to existing plants
MODULE 3 Solar Energy – Solar Heating & Photovoltaics	Physical principles of the use of solar energy • Potentials • Plant engineering for the use of solar energy (electric, thermal) • Planning, construction, implementation, operation, and maintenance • Economic evaluation, risk, and cost aspects • Practical examples,field trips to existing plants
MODULE 4 Geothermal Energy, Wind Power & Small Hydro Power	Physical principles of energy usage • Available resources, potentials • Plant engineering for energy generation (electric, thermal) • Planning, construction, implementation, operation, and maintenance • Economic evaluation, risk, and cost aspects • Practical examples, field trips to existing plants
MODULE 5 Efficient Energy Use & Thermal Building Optimization	Physical principles, energy demand of buildings, building services engineering • Optimized building concepts, potentials, opportunities • Energy efficiency in the public sector and in companies • Outsourcing of energy supply services • Economic evaluation, risk, and cost aspects • Analysis of practical examples
MODULE 6 General Legal & Economical Frameworks	Legal aspects of renewable energy according to the EU regulatory system • Basics of European Community Law • Austrian national legal basis of renewable energy • Valuation and financing of energy projects • Business plans for energy projects • Financial planning for energy projects • Principles of accounting • Tax law • Investment law / licensing procedure
MODULE 7 Integration of Renewable Energy Sources into the Energy System	Fundamentals of electricity markets and CO2 emissions trading • Basics of electricity grids • Future role and responsibilities of transmission grids • Grid integration of renewables and the concept of smart grids • Market integration of renewables and storages • Direct marketing of green electricity • Example for integrating RES-E into the grid • Tailor-made country modules to gain in-depth knowledge on energy markets in selected European countries
MODULE 8 Management & Soft Skills	Operative organization, team building • Self management, conflict management • Information work and opinion forming, media relations • Civic participation • Presentation, moderation
MODULE 9 Perspectives on the Use of Renewable Energy	Developments in world energy consumption • Future technologies • Technology assessment • Environmental protection and environment-related issues
MODULE 10 Master's Thesis	A Master's Thesis is written relating to the student's occupational activity and focusing on the feasibility of practical implementation.

SUBJECT TO MODIFICATION

Program, Objectives and Goals

PROGRAM OBJECTIVES: With the MSc Program the participants acquire knowledge and competence for

- The planning and operating of facilities using renewable energy sources
- Understanding Economic and legal frameworks concerning renewable energy topics
- Strategies and means to promote energy transition and system integration
- The future assessment of environmental, technical and economic developments of renewable energy systems

TARGET GROUPS: Individuals within companies, organizations, and authorities who are engaged in planning, operating or evaluation of renewable energy projects and who plan to engage in the necessary transition towards sustainable energy solutions. Furthermore, professionals who are involved in financing, promotion, legal licensing of facilities for the use of renewable energy or environmental issues.

FINAL DEGREE: The MSc Program is concluded by writing a Master's Thesis. Achievement of the final degree "Master of Science (MSc)" granted by the TU Wien.

ADMISSION REQUIREMENTS

- Completion of a subject-related study program in technical and natural sciences, economics or law at a recognized Austrian or
- Foreign post-secondary institution of education and a minimum of 2 years of professional experience
- Persons holding an equivalent educational and professional qualification may also be admitted

ACCREDITATION: Accredited by ASIIN (Accreditation Agency for Study Programs in Engineering, Informatics, Natural Sciences and Mathematics).

LANGUAGE OF INSTRUCTION: English

DURATION: The part-time program is presented in modules and takes four semesters. Dynamic on-site lectures are accompanied by interactive online modules to facilitate international participation.

COUNTRY MODULES: To provide the participants with in-depth knowledge on energy markets in Europe, tailor-made country modules are an essential part of this MSc Program. Within the scope of these country modules currently these countries are offered alternating: Bulgaria, Croatia, Czech Republic, Germany, Hungary, Poland, Romania, Slovakia, Slovenia, and Turkey. The schedule will include lectures in these countries as well as excursions allowing for a cross-national view on the renewables market and conveying first-hand knowledge.

FACULTY: Internationally recognized scientists and professional experts are members of this top-class faculty, based on their sound interdisciplinary specialized knowledge or on their extensive practical experience in the field of renewable energy sources. As a result, the faculty is diverse and extremely dynamic preparing our graduates to face future challenges.

Join our international network for renewable energies!

Elizabeth Rodriguez Bringas, MSc
Alumna Class 2016–2018

» This master's program is an excellent program that focuses on the technical aspect, the policies and social impacts and the economical aspect of renewables. Working with the experts of the faculty offers an opportunity for networking, mentoring and learning about the real challenges and difficulties on the path towards decarbonization. Since this program is international it also allows you to meet people from all over the world who are united by the same passion and interest to make a change in the way energy is produced, delivered and used. «

Dechawat Tamaneewan, MSc
Alumnus Class 2017–2019

» This program has fulfilled crucial knowledge that helps me in my profession as a renewable energy engineer. One thing I find specifically valuable is the connections I gained during the program: I got to know many lecturers with a high level of expertise in specific fields who help me with my current project even when I'm back to Thailand. All of my fantastic fellow students share the same interests, have become good friends and made my life abroad more comfortable and entertained. I am glad to be a part of the program and the inspiring network. «

Highlights

- Internationally required know-how
- Unique faculty from science and industry
- Close cooperation with the industry
- Attractive career prospects
- Global alumni network
- High reputation & internationally recognised accreditation
- Over 25 years of experience by our partner Energiepark Bruck/Leitha
- Special activities outside the curriculum

Student's Profile

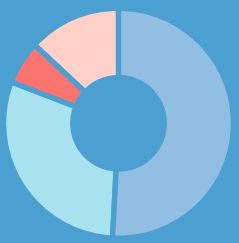
295 Students & Alumni

Nationalities of students and alumni: **50**

Average age **35** years

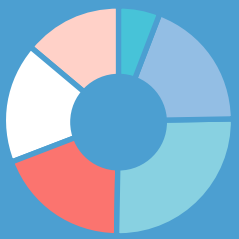
Share of international students: **61%**

Background



- **51 %** Technical
- **30 %** Economical
- **6 %** Legal
- **13 %** Other

Academic degree



- **6 %** Dr./PhD
- **19 %** Dipl.-Ing./Dipl.-Ing. (FH)
- **26 %** Mag./Mag. (FH)
- **19 %** Bachelor
- **17 %** Master
- **14 %** Other degrees

DI Theresia Vogel
Managing Director, Austrian Climate and Energy Fund

» Climate Crisis is changing the whole picture – we have to get used to new players, technologies, responsibilities and procedures within collecting energy resources on a global scale. Alumni of this Master's program will have it in their concept to adapt to future challenges. Education is the key factor in that game. «

Admission

TUITION FEE

EUR 19,500 (VAT-free) including course materials, iPad Air, and refreshments during breaks. The tuition fee does not include the cost of trips and overnight stays.

INFO SESSIONS

Presentations of the MSc Program will be held in the form of info sessions. During these info sessions the Academic Director, program managers and alumni provide you with in-depth information on the program and look forward to answering your questions.

Registration: newenergy@tuwien.ac.at

Admission/Application

Start Your Online Application:

www.tuwien.at/newenergy

After receiving your complete application, an individual admission interview with the Academic Director and the Program Management is planned. Admission interviews will take place after individual appointment.

PERSONAL ADVISORY SERVICE

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NEWSLETTER: *Subscribe to our quarterly NewEnergy-Letter and receive the latest news on our MSc Renewable Energy Systems:*

FACULTY

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DDI **Jan W. Bleyl** – Energetic Solutions
Univ.Prof.Dr. **Anton Burger** – Catholic University Eichstätt-Ingolstadt
MR Dr. **Gerhard Burian** – formerly Federal Ministry of Science, Research and Economy
Stefka Christodulova, M.A. – Wit4Grit e.U.
Dr. **Benedikt Ennser** – Federal Ministry of Science, Research and Economy
FH-Prof. DI **Hubert Fechner,** MAS, MSc – FH Technikum Wien
DI **Alexander Fischer** MSc – TB Fischer GmbH
Dr. **Anton Friedl** – TU Wien
DI Dr. **Werner Friedl** MBA – TU Wien
Univ.Prof.Dr.-Ing. **Wolfgang Gawlik** – TU Wien
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DI **Roger Hackstock** – Energy Academy & Freelance Energy Policy Consultant
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DI **Marcus Hummel** – e-think, Zentrum für Energiewirtschaft und Umwelt
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DI Dr. **Lukas Kranzl** – TU Wien
DI **Andreas Krenn** – Energiewerkstatt
DI **Martin Krill** – Profes, Professional Energy Services GmbH
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DI **Michael Mandl** – tbw research GesmbH
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DI Dr. **Christian Panzer** – CPE-Thinktank e.U.
Univ.Prof.Dr. **Bernhard Pelikan** – Vienna University of Natural Resources and Applied Life Sciences
Dr **Hermann Pengg** – Audi AG
Dr. **Gerhard Piringer** – University of Applied Sciences Burgenland
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DI **Georg W. Reinberg** – Architekturbüro Reinberg ZT GmbH
DI Dr. **Gustav Resch** – TU Wien
Dr. **Rusbeh Rezania** – Wien Energie GmbH
Dr. **Bas van Ruijven** – International Institute for Applied Systems Analysis (IIASA)
Dr. **Fabian Schipfer** – TU Wien
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Thomas Steinberger MSc – AFRY Management Consulting Austria GmbH
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Prof.Dr. **Páll Valdimarsson** – Pvald ehf
Dipl.-Päd.Ing. **Werner Weiss** – AEE INTEC
DI **Lukas Weißensteiner** – RP Global Austria

This represents a selection of the faculty of class 2019–2021.

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